

Existing Use Determination and Rationale:

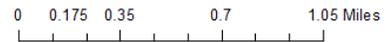
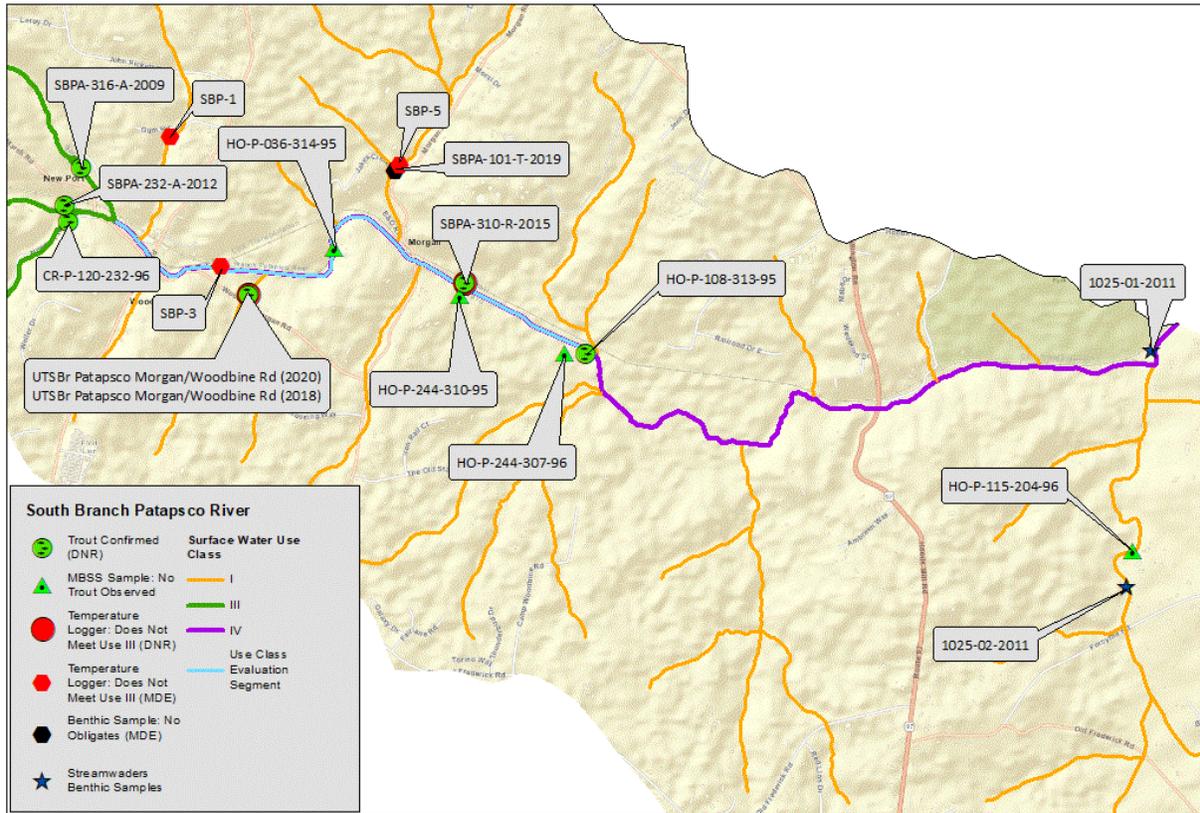
South Branch Patapsco River and Unnamed Tributary (Carroll County and Howard County)

April 28, 2020

Description of Setting and Data Sources

The South Branch Patapsco River main stem (8-digit 02130908) located near Woodbine, MD in the southern portion of Carroll and northern portion of Howard County is currently designated as a Use Class IV waterbody. The MDDNR MBSS Program, Trout Unlimited and Stream Waders volunteers conducted surveys of the South Branch Patapsco River mainstem and an unnamed tributary. The figure below shows the location of the South Branch Patapsco River along with relevant sampling stations. The data from these sampling stations (Tables 1 and 2) including water temperature and trout species information is summarized below. For the purposes of determining the existing uses at an appropriate level of specificity, this document examines the available data for South Branch Patapsco River mainstem and the unnamed tributary to the South Branch Patapsco River both separately and in aggregate.

Figure 1. South Branch Patapsco River



Existing Use Determination for the South Branch Patapsco River Mainstem

Temperature Data for the South Branch Patapsco River

Water temperature data were collected at 2 sampling stations in the South Branch Patapsco main stem. Water temperature results at these stations do not meet the Class III criterion. Data for two additional temperature loggers are also summarized in Table 1 (SBP-1 and SBP-5). These loggers were located in tributaries to the South Branch Patapsco River.

Table 1. South Branch Patapsco River Water Temperature Logger Data

| Date | Station ID | Stream | Data Submitter | # Temp Readings | Percent>20°C | Percent>24°C | Avg Daily Mean | Daily Max |
|------|-----------------|--------------------------------|--------------------|-----------------|--------------|--------------|----------------|-----------|
| 2019 | SBP-1 | UT South Branch Patapsco River | MDE Field Services | 8735 | 28.8% | 0.01% | 18.8 | 25.7 |
| 2019 | SBP-3 | South Branch Patapsco River | MDE Field Services | 8735 | 68.7% | 4% | 20.9 | 26.7 |
| 2019 | SBP-5 | UT South Branch Patapsco River | MDE Field Services | 8735 | 57.7% | 12% | 20.5 | 30.5 |
| 2015 | SBPA-310-R-2015 | South Branch Patapsco River | MDDNR MBSS | 6624 | 58% | 0% | 19.98 | 23.28 |
| 1996 | HO-P-244-307-96 | South Branch Patapsco River | MDDNR MBSS | - | - | - | - | - |
| 1996 | HO-P-115-204-96 | UT South Branch Patapsco River | MDDNR MBSS | - | - | - | - | - |
| 1995 | HO-P-244-310-95 | South Branch Patapsco River | MDDNR MBSS | - | - | - | - | - |
| 1995 | HO-P-108-313-95 | South Branch Patapsco River | MDDNR MBSS | - | - | - | - | - |

| Date | Station ID | Stream | Data Submitter | # Temp Readings | Percent>20°C | Percent>24°C | Avg Daily Mean | Daily Max |
|-------------|-------------------|-----------------------------|-----------------------|------------------------|------------------------|------------------------|-----------------------|------------------|
| 1995 | HO-P-036-314-95 | South Branch Patapsco River | MDDNR MBSS | - | - | - | - | - |

*Water temperature logger data assessed from June to August. The “Daily Max” represents the maximum temperature from June to August. Temperature loggers were not deployed for MDDNR MBSS round 1 (1994-1997).

Biological Data for the South Branch Patapsco River

Multiple year classes including young-of-year brown trout were found at a biological sampling event (Level 3 data) in 2015. One adult brown trout was found during a sampling event (Level 3 data) in 1995. MDDNR MBSS sampling events did not yield any coldwater obligate benthic macroinvertebrate species. Three additional MBSS stations located upstream of the segment being evaluated are also listed in Table 2 (SBPA-232-A-2012, SBPA-316-A-2009, and CR-P-120-232-96). These three stations had trout observations and were located in waters already designated as Use Class III waters.

There were 2 MDDNR Stream Waders sampling events (Level 2 data) that occurred in 2011. The sampling events did not yield any coldwater obligate benthic macroinvertebrate species. Unless otherwise noted, benthic data submitted by MDDNR Stream Waders was identified to family level.

Table 2. South Branch Patapsco River Biological Data (*Data in italics was collected in upstream Class III portions of the South Branch Patapsco River*)

| Date | Station ID | Stream | Data Submitter | Species | Count | Maturity |
|-----------|------------------------|------------------------------------|--------------------|--------------------|-----------|--------------------------------|
| 2019 | SBPA-101-T-2019 | UT South Branch Patapsco River | MDE Field Services | - | - | - |
| 9/14/2015 | SBPA-310-R-2015 | South Branch Patapsco River | MDDNR MBSS | brown trout | 12 | Multiple Year Classes with YOY |
| 2012 | <i>SBPA-232-A-2012</i> | <i>South Branch Patapsco River</i> | <i>MDDNR MBSS</i> | <i>brown trout</i> | <i>10</i> | <i>Multiple Year Classes</i> |
| 2009 | <i>SBPA-316-A-2009</i> | <i>Gillis Falls</i> | <i>MDDNR MBSS</i> | <i>brown trout</i> | <i>10</i> | <i>Multiple Year Classes</i> |
| 1996 | <i>CR-P-120-232-96</i> | <i>Patapsco River</i> | <i>MDDNR MBSS</i> | <i>brown trout</i> | <i>2</i> | <i>Adults</i> |
| 8/21/1996 | HO-P-244-307-96 | South Branch Patapsco River | MDDNR MBSS | - | - | - |
| 7/10/1996 | HO-P-115-204-96 | UT South Branch Patapsco River | MDDNR MBSS | - | - | - |

| Date | Station ID | Stream | Data Submitter | Species | Count | Maturity |
|-----------|-----------------|--------------------------------|---------------------|-------------|-------|----------|
| 7/26/1995 | HO-P-244-310-95 | South Branch Patapsco River | MDDNR MBSS | - | - | - |
| 7/25/1995 | HO-P-108-313-95 | South Branch Patapsco River | MDDNR MBSS | brown trout | 1 | Adult |
| 8/1/1995 | HO-P-036-314-95 | South Branch Patapsco River | MDDNR MBSS | - | - | - |
| 4/23/2011 | 1025-02-2011 | UT South Branch Patapsco River | MDDNR Stream Waders | - | - | - |
| 3/13/2011 | 1025-01-2011 | South Branch Patapsco River | MDDNR Stream Waders | - | - | - |

* YOY - young-of-year

DNR Fish Stocking

In a personal communication, Mark Staley (Maryland Department of Natural Resources) stated that a put-and-take adult trout fishery is maintained in the South Branch Patapsco River downstream of the use class evaluation segment. The put-and-take area begins at Main St. in Sykesville and extends downstream to the confluence with the North Branch Patapsco River near Marriottsville Rd. The majority of stocked species are rainbow trout, however a small number of adult brown trout are also stocked. There are multiple stream confluences separating the stocked area and the use class evaluation segment. Furthermore, no rainbow trout have been observed in the use class evaluation segment. Therefore, it is much more likely that the naturalized self-sustaining brown trout population observed in the use class evaluation segment is an extension of the Gillis Falls population, and not the result of recent downstream stocking.

Maryland DNR scientists have documented that the naturalized self-sustaining brown trout population occurring in Gillis Falls was first established with brown trout fingerlings from Jones Falls. Although Maryland DNR has documented that fingerlings have been stock upstream and downstream of the use class evaluation segment, the most recent such stocking event occurred in 2001

Existing Use Determination and Rationale for the South Branch of the Patapsco River Mainstem

Current Use Class: Class IV

Existing Use Determination: The South Branch of the Patapsco River, from the confluence with the unnamed tributary near The Old Station Court [39.355229° N, -77.033924° W] upstream to the confluence near the intersection of Flag Marsh Road and Newport Road [39.362009° N, -77.065060° W], supports naturalized self-sustaining brown trout (*Salmo trutta*) and water temperatures that have an average daily mean below 21°C, daily maximum below 27°C, stay below 24°C at least 90% of the time and stay below 20°C at least 31% of the time (Figure 2).

Is this Existing Use Determination Consistent with the Currently (March 2020) Designated Use Class:

No. The existing use of this section of the South Branch Patapsco River, is described as having naturalized self-sustaining brown trout. This existing use is different from the definition of a Use Class IV/IV-P water body which is described as “Capable of holding or supporting adult trout for put-and-take fishing; and (b) Managed as a special fishery by periodic stocking and seasonal catching.” Therefore, the existing use of this section of the South Branch Patapsco River requires protections to maintain the naturalized self-sustaining brown trout population found here.

Changes Proposed to the Current Designated Use Class: Though it is clear that the designated use class of this section of the South Branch Patapsco River should be revised to reflect and be protective of the existing use, current temperature data do not support the re-designation of this section of the South Branch Patapsco River to Class III without conducting a use attainability analysis (UAA). Since Maryland is in the process of redefining Class IV/IV-P and potentially developing a new ‘cool water’ use class as part of the work of the Cold Water Advisory Committee, it is not prudent to redesignate the existing use of this section of the South Branch Patapsco River. Instead, and until Maryland conducts either a UAA or establishes new definitions for Class IV and a cool water use, MDE will formally recognize this section of the South Branch Patapsco River as having an existing use requiring the protection of naturalized self-sustaining brown trout population.

Rationale for the Existing Use Determination: Multiple sampling events have shown that there is a naturalized self-sustaining brown trout population located in the Use Class III waters just upstream of the segment being evaluated in this document. Two additional MBSS sampling events have shown that brown trout also utilize the South Branch Patapsco River mainstem downstream from the Class III waters (in the segment being evaluated here) to the confluence with the unnamed tributary near The Old Station Court.

Since none of the water temperature data collected in this section of the South Branch Patapsco River or the nearby portions of the South Branch Patapsco River meet the Class III temperature criterion, the State cannot justify redesignating any portion of this section of the South Branch Patapsco River to Class III without further improvements in water temperature or conducting a UAA. And even though these water temperature data may support a redesignation to the conceptualized ‘cool water’ use currently being discussed, since these uses are in flux, the State prefers to protect this stream with the protections under Tier I Antidegradation Policy until those uses are properly revised and/or developed.

Existing Use Determination for Unnamed Tributary to South Branch Patapsco River Near Woodbine Road

Temperature Data for the Unnamed Tributary

Water temperature data were collected at 2 sampling stations in this unnamed tributary. Neither logger showed attainment of the Use Class III criterion.

Table 3. Unnamed Tributary to South Branch Patapsco River Water Temperature Logger Data

| Date | Station ID | Stream | Data Submitter | # Temp Readings | Percent>20°C | Percent>24°C | Avg Daily Mean | Daily Max |
|------|-----------------------------------|--------------------------------|-----------------|-----------------|--------------|--------------|----------------|-----------|
| 2018 | UTSBr Patapsco Morgan/Woodbine Rd | UT South Branch Patapsco River | DNR Fisheries | 6624 | 10.08% | 0% | 17.9 | 30.5 |
| 2020 | UTSBr Patapsco Morgan/Woodbine Rd | UT South Branch Patapsco River | Trout Unlimited | 6624 | 45% | 0% | 19.5 | 23.7 |

Biological Data for the Unnamed Tributary

The Maryland Department of Natural Resources conducted a survey of this unnamed tributary in 2020. Multiple year classes of adult brown trout were confirmed.

| Date | Station ID | Stream | Data Submitter | Species | Count | Maturity |
|------|-----------------------------------|--------------------------------|----------------|-------------|-------|---------------------------------|
| 2020 | UTSBr Patapsco Morgan/Woodbine Rd | UT South Branch Patapsco River | DNR Fisheries | Brown Trout | 6 | Multiple year classes of adults |

DNR Fish Stocking

The fish stocking activities in this surface water were described above in the existing use determination for the mainstem of the South Branch Patapsco River. The Department has determined that the brown trout observed in this unnamed tributary are not the result of recent stocking.

Existing Use Determination and Rationale for the unnamed tributary to the South Branch of the Patapsco River Mainstem

Current Use Class: Class I

Existing Use Determination: The tributary to the South Branch of the Patapsco River, from the confluence with the South Branch Patapsco River [39.359344° N, -77.055191° W] upstream to the confluence past Woodbine Morgan Rd [39.354814° N, -77.058031° W], supports naturalized self-sustaining brown trout (*Salmo trutta*) and water temperatures that have an average daily mean below 20°C, daily maximum below 23.7°C, stay below 24°C at least 90% of the time and stay below 20°C at least 55% of the time (Figure 2).

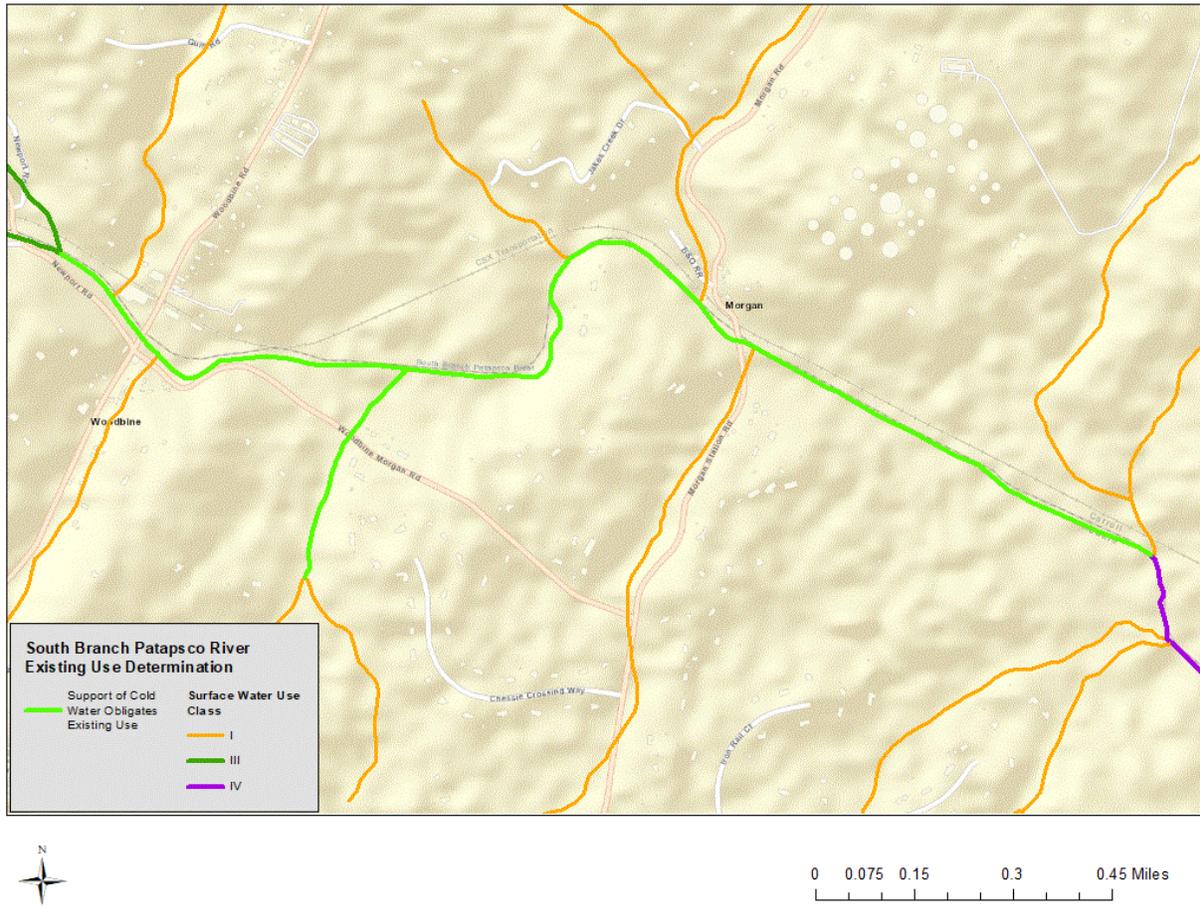
Is this Existing Use Determination Consistent with the Currently (March 2020) Designated Use Class: **No.** The existing use of this tributary to the South Branch Patapsco River, is described as having naturalized self-sustaining brown trout. This existing use is different from the definition of a Use Class I water body which is described as “Protection of Nontidal Warmwater Aquatic Life” and “The growth and propagation of fish (other than trout)”. Therefore, the existing use of this tributary to the South Branch Patapsco River requires protections to maintain the naturalized self-sustaining brown trout population found here.

Changes Proposed to the Current Designated Use Class: Though it is clear that the designated use class of this tributary to the South Branch Patapsco River should be revised to reflect and be protective of the existing use, current temperature data do not support the re-designation of this tributary to the South Branch Patapsco River to Class III without conducting a use attainability analysis (UAA). Since Maryland is in the process of redefining Class IV/IV-P and potentially developing a new ‘cool water’ use class as part of the work of the Cold Water Advisory Committee, it is not prudent to redesignate the existing use of this tributary to the South Branch Patapsco River. Instead, and until Maryland conducts either a UAA or establishes new definitions for Class IV and a cool water use, MDE will formally recognize this tributary to the South Branch Patapsco River as having an existing use requiring the protection of naturalized self-sustaining brown trout population.

Rationale for the Existing Use Determination: Multiple sampling events have shown that there is a naturalized self-sustaining brown trout population located in the Use Class III waters just upstream of the confluence of this tributary with the South Branch Patapsco River. The data show that this population also extends downstream of this confluence. The multiple year classes found in 2020 show that the self-sustaining brown trout also utilize this tributary.

Since none of the water temperature data collected in this tributary to the South Branch Patapsco River or the nearby portions of the South Branch Patapsco River meet the Class III temperature criterion, the State cannot justify redesignating any portion of this tributary to the South Branch Patapsco River to Class III without further improvements in water temperature or conducting a UAA. And even though these water temperature data may support a redesignation to the conceptualized ‘cool water’ use currently being discussed, since these uses are in flux, the State prefers to protect this stream with the protections under Tier I Antidegradation Policy until those uses are properly revised and/or developed.

Figure 2. South Branch Patapsco River Existing Use Determination



Public Review Process: These existing use determinations were provided for public review and comment with Maryland’s 2019 Triennial Review of Water Quality Standards which went public with the March 11, 2022 edition of the Maryland Register.